AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): A system for monitoring performance of an apparatus, comprising:

a plurality of operational components functioning in said apparatus, each operational component with a predetermined nominal operating state and each generating respective electrical signals pursuant to their operation;

a data collection memory in said apparatus storing samples of said electrical signals in a rolling buffer;

an analyzer in said apparatus responsive to said electrical signals for performing data analysis and calculating predetermined parameters to detecting a trigger event indicative of at least a potential variance of an operational component from its nominal operating state;

a computation center located remotely from said apparatus and having a database storing representations of electrical signals for classifying nominal and irregular operating states of said operational components; and

a transmitter activated by said trigger event to automatically transmit at least some of said stored samples in said rolling buffer at the time of said trigger event to said computation center;

wherein said computation center receives said transmitted samples and classifies them according to said nominal or irregular operating states.

Claim 2 (original): The system of claim 1 wherein said apparatus is comprised of a motor vehicle and said transmitter is a wireless transmitter.

Claim 3 (original): The system of claim 1 wherein said samples transmitted by said transmitter are comprised of a predetermined subset of said electrical signals.

Claim 4 (original): The system of claim 3 wherein said predetermined subset is chosen from a plurality of subsets in response to said electrical signals.

Claim 5 (original): The system of claim 3 wherein said predetermined subset is chosen from a plurality of subsets in response to a control signal received from said computation center.

Claim 6 (original): The system of claim 1 wherein said transmitter transmits stored samples collected over a predetermined time interval spanning said trigger event.

Claim 7 (original): The system of claim 6 wherein said samples transmitted by said transmitter are comprised of a predetermined subset of said electrical signals.

Claim 8 (original): The system of claim 7 wherein said transmitted samples collected prior to said trigger event correspond to a first predetermined subset of said electrical signals and said transmitted samples collected after said trigger event correspond to a second predetermined subset of said electrical signals.

Claim 9 (original): The system of claim 8 wherein said second predetermined subset of said electrical signals is determined in response to a source of said trigger event.

Claim 10 (original): The system of claim 1 wherein said samples summarize an operational history of said vehicle and said computation center analyzes a severity of operation for various system components in order to project operational lifetime in response to said samples.

Claim 11 (original): The system of claim 1 wherein said operational components include electronic modules having respective microcontrollers, and wherein said samples include input and output signals of said microcontrollers.

Claim 12 (original): The system of claim 1 wherein said operational components include electronic modules having respective microcontrollers, and wherein said samples include memory contents within said microcontrollers.

Claim 13 (original): The system of claim 1 wherein said operational components include sensors and actuators, and wherein said samples include electrical signals from and to said sensors and actuators.

Claim 14 (original): The system of claim 1 wherein said operational components include electronic modules having respective microcontrollers, and wherein said trigger event is comprised of the detection of the setting of a predetermined flag in one of said microcontrollers.

Claim 15 (original): The system of claim 1 wherein said operational components include electronic modules having respective microcontrollers, and wherein said trigger event is comprised of the detection of the setting of a predetermined diagnostic code in one of said microcontrollers.

Claim 16 (original): The system of claim 1 wherein said analyzer compares at least one sample with a predetermined threshold, and wherein said trigger event is generated in response to said comparison.

Claim 17 (original): The system of claim 1 wherein said analyzer compares stored samples in said rolling buffer to a predetermined pattern, and wherein said trigger event is generated in response to said comparison.

Claim 18 (original): The system of claim 17 wherein said predetermined pattern is comprised of a histogram.

Claim 19 (original): The system of claim 1 wherein said analyzer determines an average value of a predetermined electrical signal over time, compares said average value to a predetermined average threshold, and generates said trigger event in response to said comparison.

Claim 20 (original): The system of claim 1 wherein said analyzer performs a predetermined analysis routine to detect said trigger event.

Claim 21 (original): The system of claim 20 wherein said transmitter is comprised of a transceiver and wherein said predetermined analysis routine is downloaded from said computation center via said transceiver.

Claim 22 (original): The system of claim 1 wherein said trigger event is detected in response to an elapsed period of time.

Claim 23 (original): The system of claim 2 further comprising an operator interface for displaying messages from said computation center in response to a classification of transmitted samples.

Claim 24 (original): The system of claim 1 wherein said computation center adjusts said database in response to said transmitted samples so that said adjusted database is used for future classifications of other apparatus by said computation center.